3.3.10 TMDL'S, WLA'S, and 303(d)

The wasteload allocations (WLA's) which are used to derive effluent limits may be derived on an individual permit basis or they may be determined by a basin TMDL allocation.

Federal and state regulations require permits be conditioned so as to meet the water quality standards. In the absence of a basin TMDL and WLA from a TMDL, the permit writer must do an individual WLA.

NO TMDL AND NO 303(d) LISTING

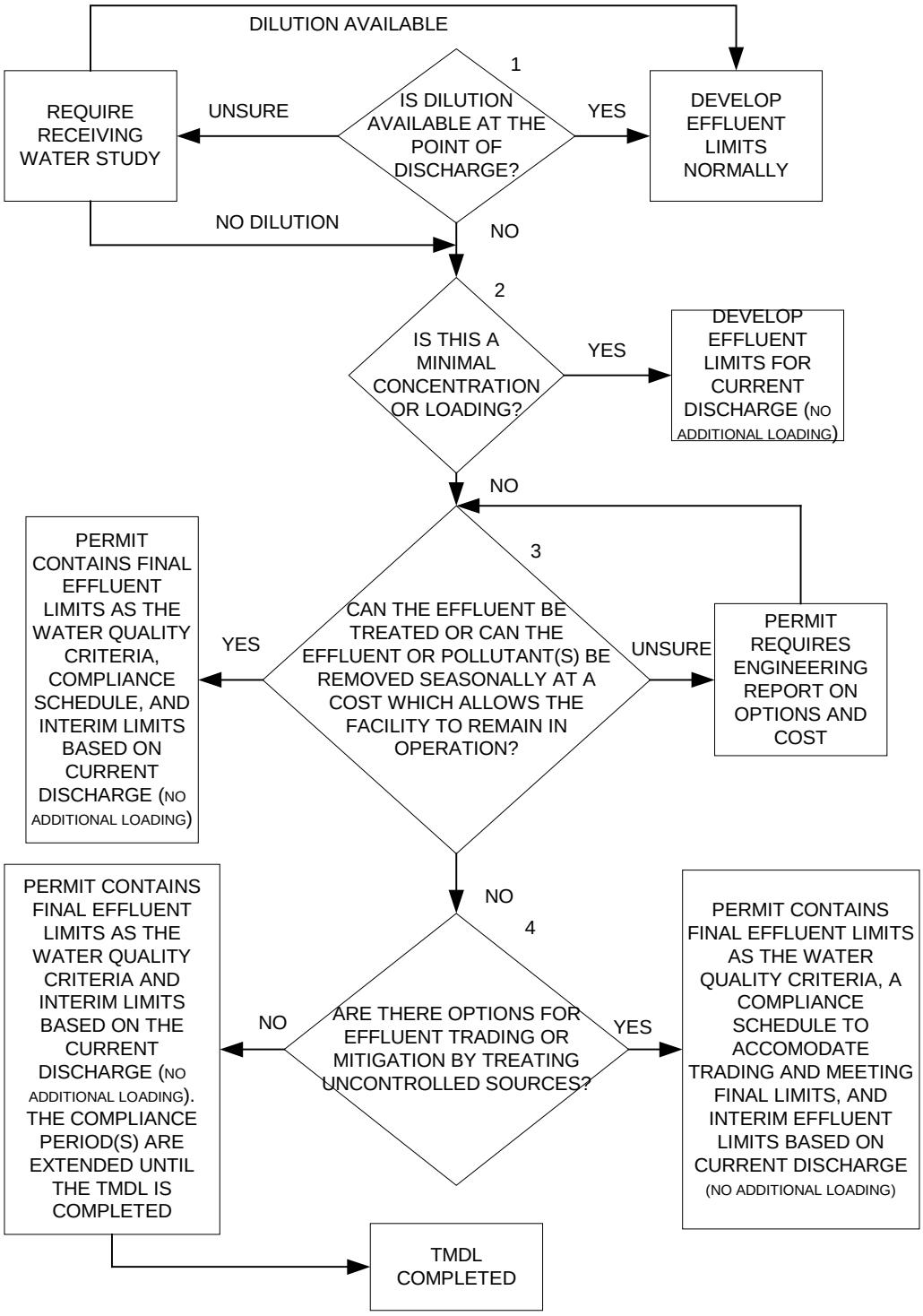
Occasionally, the permit writer, in the course of preparing a permit, will find that the receiving water concentration does not meet the aquatic life or human health criteria and that the receiving water is not listed on the 303(d) list (http://www.ecy.wa.gov/programs/wq/303d/index.html). In these cases, where the excursion is human-caused and documented with data that meets the criteria for 303(d) listing (see the listing policy), the permit writer should limit (final limit) the pollutant to meet the criteria in the effluent (no dilution allowance), develop interim effluent limits based on existing performance (no increase in loading) and grant a compliance schedule in the permit (see Figure VI-4, decision boxes 1, 2, 3, and 4). The compliance schedule should be long enough to allow a TMDL to be completed but must also cause the permittee to investigate the feasibility of meeting the final limit. The Watershed Management Section should be given the water quality information on the water body. This data must be in Storet format. The water body will then be listed on the 303(d) list and prioritized for a TMDL. All of the options and requirements discussed below such as seasonal limits and requirements for an engineering report are applicable.

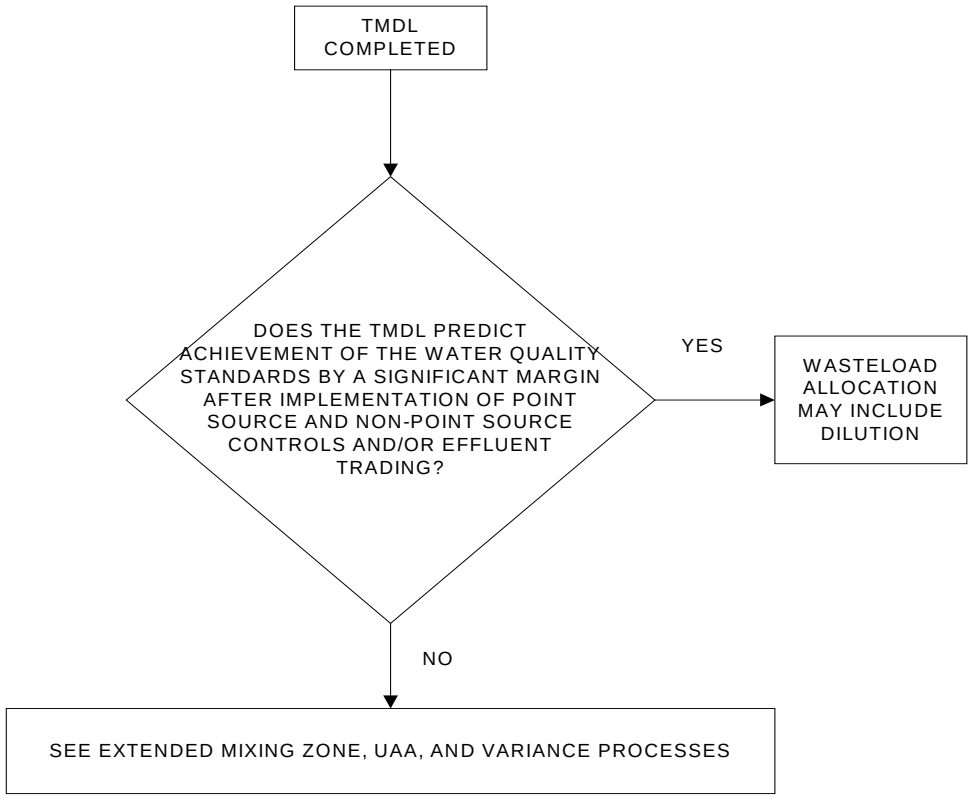
If the data on the excursion does not meet the 303(d) listing criteria, the permittee should be required, usually by compliance order, to investigate receiving water quality to determine if the receiving water exceeds water quality standards at the time of critical condition. A quality assurance plan (QAPP) must be prepared by the permittee and approved by Ecology. The final data must be suitable for entry into Storet. No limits are necessary in this situation, however, if no technology-based limitations have been explored for the pollutant, the order should also include the requirement for an engineering report on treatment options and costs.

NO TMDL – 303(d) LISTED

It's more likely that a permit writer will be renewing a permit and discover the receiving water body is on the 303(d) list. If the pollutant that caused the listing is not present in the discharge no limit is required. If the pollutant is present in the discharge the options are given below in Figure VI-4 and the text that follows.

Figure VI-4. Permitting discharges to a 303(d) listed water body with no TMDL. If an AKART analysis has not been completed for the pollutants at issue, decision boxes 1 and 3 are conducted concurrently.





Decision box 1 (Is Dilution available?)– Non-conservative Pollutants.

The permit writer must make a judgement, based on the circumstances of the 303(d) data on how to proceed with the listed pollutant in the effluent. This judgement is influenced by the type of pollutant and whether it is a conservative or non-conservative pollutant. Non-conservative pollutants are pollutants that degrade in the receiving water. Some typical non-conservative pollutants are BOD, ammonia nitrogen, and fecal coliform.

If the listing is for one station at some distance from the point of discharge then there may be some uncertainty about the water quality at the point of discharge for non-conservative pollutants. If there are station listings above and below the point of discharge or one station close to the point of discharge then there is more certainty that the water quality does not meet the criteria at the point of discharge. Another judgement must be made regarding the degradation rate of the pollutant in relation to the point of discharge and the listing station(s). Some volatile pollutants may degrade in a matter of hours in a turbulent river but others such as BOD may not reach full effect on dissolved oxygen until several days travel time down-river. A permit writer who is unsure of the dynamics of the water quality at the point of discharge may wish to consult with someone in the EA Program.

Decision box 1 (Is Dilution available?)– Conservative Pollutants

Conservative pollutants do not degrade in the receiving water, however, they may change form or their media association. Metals are a common conservative pollutant. They may be in a bound or dissolved form in the water column or go to the sediments. The decision-making process is much the same as for non-conservative pollutants except that if the listing station is downstream of the discharge, the effluent must be limited to the criteria in order not to contribute to the excursion downstream.

A factor of uncertainty with metals is the correctness of the data if the receiving water or effluent data wasn't collected using ultra-clean sampling and analysis. The concentrations of metals in the receiving water and the effluent should be confirmed using clean sampling and analytical techniques.

Decision box 1 (Is Dilution available?)– Human Health Pollutants

The listing for human health pollutants may be made on the basis of water column concentration or on the basis of fish tissue analysis. If the listing is on the basis of resident fish tissue concentration above or below the point of discharge there is no dilution available for the listed pollutant. If the listing is on the basis of water column concentration the decision criteria given above for other pollutants are applicable.

Decision box 1 (Is Dilution available?) - Water Quality Studies

If there is some uncertainty about the conditions at the point of discharge and the amount of dilution available, the permit writer may require a receiving water study. A water quality-based effluent limit is not always required in the permit that requires the study (see the following discussion on timing), but an effluent limit based on demonstrated performance should be placed in the permit. This limits the discharger to their current loading until the uncertainty about the receiving water condition is resolved.

Permit conditions which require receiving water studies should require that the study plan be submitted as a QAPP to be approved by Ecology before the study proceeds. The permit should require the data from the study be submitted in a Storet format. The permit should also require that the critical conditions be determined for the 10 year low flow. This can be done for some parameters by correlating the site data to a long-term monitoring station. For other parameters where long-term data is not available, the techniques for estimating 90^{th} percentile values from a small data set are given in Section 3.3.11 of this chapter, in appendix 6, and in the references cited in those sections.

If receiving water data indicates there is no dilution available for part or all of the year, then other options can be explored as indicated on the flow chart. If no dilution is available, however, a final effluent limitation of the criteria concentration (amount) must be placed in the permit as well as an interim limit based on existing performance.

Decision box 2 – Minimal Concentration or Loading

In some cases a permit writer may determine that the existing pollutant concentration or loading from a point source is minimal to the total loading of the system even through it would otherwise be required to be reduced to meet water quality standards. This determination of minimal concentration or loading would typically be made for pollutant concentrations or loading that border on measurability or are within the variation of measurement at the boundary of the mixing zone or zone of maximum effect (BOD). In this case the permit writer may allow the existing minimum pollutant loading or concentration which would then be subject to revision with the TMDL and new wasteland allocation. The pollutant(s) would receive limits to prevent increases in loading over time prior to a TMDL. If this minimal determination is made for temperature and it's also determined that the receiving water is unlikely to meet or be below the water quality standard after implementation of the TMDL, the permit writer may allow up to a 0.3 C° increase over the water quality standard at the chronic zone boundary at the time of maximum temperature. This temperature allowance would also require a effluent limit to prevent increases over time.

Decision box 3. Once the water quality impairment is confirmed or verified the following principle is in effect:

- There can be no additional loading or higher concentration allowed for the listed pollutants at times of impairment until the TMDL is completed and it shows dilution available at full implementation of the TMDL (except for minimal concentration or loading).

Ceasing discharge to surface waters may be an option for some small dischargers especially for summer discharges with high temperatures and low dilution. Other options include using the wastewater for irrigation or simply storing the wastewater. In some cases there may be opportunities for seasonal pollutant removal. These options are explored in an engineering report required as part of the compliance schedule if these options were not originally explored in the AKART analysis. If seasonal removal appears feasible for a facility, the final effluent limit should be either:

1. the water quality criteria or
2. no discharge during critical period.

An interim limit, based on existing performance, is placed in the permit. For some pollutants, treatment may be available that is within the financial capability of the facility. If the treatment option is used the permit should contain a final effluent limitation of the criteria concentration

(amount) and an interim limit based on existing performance or a compliance schedule to meet final limitations.

Decision box 4. For some limited number of pollutants and discharges there may be some options for pollutant trading in which a discharger would pay some upstream point source or non-point source for treatment in order to gain some allowable dilution at the dischargers location. If this option is used, the permit should contain a final effluent limitation of the criteria concentration (amount) and an interim limit based on existing performance or a compliance schedule to meet final limitations. If this option is considered, there must be available data on the upstream source that would be used for the trade. This option is administratively very time consuming.

Timing for Decision Boxes 1, 2, 3, and 4. The permit language requiring examination of the options in boxes 1, 2, 3 and 4 in Figure VI-4 may be sequential within one permit term depending on the size and priority of the discharge. For example, a permit for a large industrial source which is being required to do a water quality study in the initial years of the permit, should also require an engineering report for treatment options in the later years of the permit if the studies show violations of water quality standards. In other cases, such as small municipalities, which may require several years to fund a water quality study, the initial permit may only require the water quality study. The next permit would then require the engineering report.

If none of the preceding options are feasible or demonstrated to be feasible, the TMDL has not been completed by the second round of permitting, and the loading from the point source is small compared to the total receiving water load the permit manager may defer compliance in an extended compliance schedule until a TMDL is completed.

NEW DISCHARGES TO LISTED WATERBODIES

No TMDL

A new discharge to a listed waterbody can not be allowed (issuance of permit is prohibited) if the discharge will cause or contribute to a violation of water quality standards.

In some cases a new discharger may be allowed to discharge listed pollutants by mitigating the discharge or discharging seasonally. Mitigation may entail treating a previously untreated but quantified pollutant source, such as a stormwater outfall.

TMDL Completed

A new source or new discharger proposing to discharge to a listed waterbody for which a TMDL has been completed and WLA's assigned may obtain a permit for discharge into a

water segment which does not meet applicable water quality standards by submitting information demonstrating that there is sufficient loading capacity remaining in the waste load allocations for the stream segment to accommodate the new discharge and that existing dischargers to that segment are subject to compliance schedules designed to bring the segment into compliance with the applicable water quality standards.

GENERAL PERMITS

General permits are issued under the same laws and regulations as individual permits, however, Ecology is unable to invest the time necessary to make the site-specific decisions regarding the water quality at the point of discharge for the large number of permittees wanting coverage under general permits. Therefore, general permits will contain language which says, "The perimeter's discharge must not cause or contribute to an excursion of the State's water quality standards, including the State's narrative criteria for water quality [40 CFR 122.44(d)(1)(i)]. If you discharge a pollutant which is named as a pollutant causing a water quality standards' violation at the location named on the State's 303(d) list you shall not discharge that pollutant at a concentration above the State's water quality standard". The application for coverage under the General Permit will ask if the discharge is to a listed waterbody and will provide information for the applicant to determine if they will be discharging to a listed waterbody. When possible, the pollutants specific to the type of discharge covered by the general permit will be identified in the permit application materials. If the permit applicant indicates they will be discharging a named pollutant to listed waterbody, the applicant must receive an individual permit or the general permit must include language quoted above.

TMDL COMPLETED

If the TMDL has been completed at the location, the steps for compliance may be similar to those given above especially when the WLA doesn't allow for any significant dilution. In cases where a point source WLA assumes some dilution will be available the compliance period may be extended to be equal to any non-point compliance period for the Load Allocation.

NATURAL CONDITIONS

A determination that natural conditions in a waterbody exceeded water quality standards can only be made from: 1) data from the waterbody prior to any human disturbance in the watershed, 2) correlation of the waterbody to a nearby undisturbed waterbody, or 3) a model of the waterbody and watershed developed as part of a TMDL.

In some cases the permittee or applicant may try to demonstrate that conditions in the waterbody were not meeting standards before the addition of wastewater and therefore are natural conditions or natural background levels. Natural conditions are defined in the Water Quality Standards as the surface water quality that was present before any human-caused pollution (WAC 173-201A-020). Human-caused pollution includes non-point sources such as timber harvesting and farming. Therefore, unless data is available from the watershed before there was any human disturbance or from a nearby undisturbed watershed showing exceedance of standards, a determination of natural conditions should not be made by the permit writer. An estimate of natural conditions can be made by modeling during the TMDL.